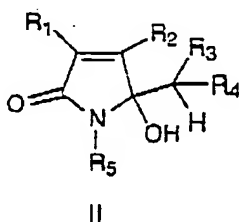


AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-117 (cancelled)

118 (new). A method for the preparation of compound of formula II



wherein R₁ and R₂ are independently selected from the group H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted substituted or unsubstituted oxoalkyl, substituted or unsubstituted substituted or unsubstituted alkenyl, substituted or unsubstituted substituted or unsubstituted aryl or arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R₃ and R₄ are independently selected from the group H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl;

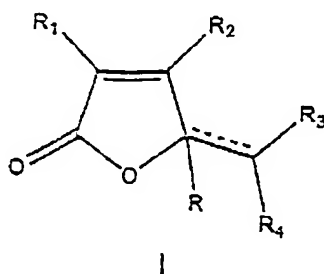
R₅ is selected from the group consisting of H, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted alkylsilyl, substituted or unsubstituted substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted substituted or unsubstituted aryl or substituted or

unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface,

the method comprising reacting a compound of formula I



wherein R_1 and R_2 are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R_3 and R_4 are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and R is hydroxy, halogen; and

"-----" represents a single bond, in which case R is absent, or a double bond, provided that at least one of R_1 , R_2 , R_3 and R_4 is halogen,

with a compound of formula R_5NH_2

wherein R_5 is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or

unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or forms part of an amino acid, or is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

119 (new). A method according to claim 118, wherein, at least one of R_1 , R_2 , R_3 and R_4 is halogen.

120 (new). A method according to claim 118, wherein R_5 is a residue of a naturally occurring compound.

121 (new). A method according to claim 118, wherein R_5 is a biomolecule.

122 (new). A method according to claim 121, where R_5 is a coenzyme or cofactor.

123 (new). A method according to claim 118, wherein R_5 is an oligomer or a polymer.

124 (new). A method according to claim 123, wherein the oligomer or polymer is a biomolecule.

125 (new). A method according to claim 124, wherein R_5 is a peptide or polyamide.

126 (new). A method according to 118, wherein R_5 is a protein residue.

127 (new). A method according to claim 126, where R_5 is an enzyme or a receptor.

128 (new). A method according to 118, wherein R_5 is an oligomer or polymer comprising nucleic acid residues.

129 (new). A method according to claim 128, wherein R_5 is a polynucleotide.

130 (new). A method according to claim 129, wherein the polynucleotide is DNA or RNA.

131 (new). A method according to claim 118, wherein R_5 is a surface or a substrate with which the nitrogen atom of compound II is associated.

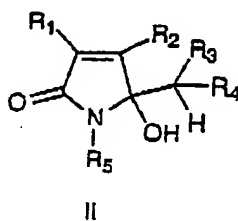
132 (new). A method according to claim 131, wherein the association is chemical bonding.

133 (new). A method according to claim 132, wherein the association is

covalent bonding.

134 (new). A method according to 118, wherein the surface or substrate may be biological or synthetic.

135 (new). A compound of formula II:



wherein R_1 and R_2 are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R_3 and R_4 are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl;

R_5 is selected from the group consisting of H, hydroxy, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl, substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

136 (new). A compound according to claim 135, wherein R_5 is a D- or L-nucleoside.

137 (new). A compound according to claim 135, wherein R_5 is an oligomer or a polymer.

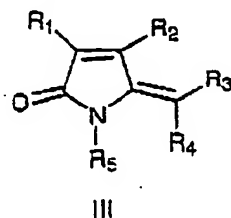
138 (new). A compound according to claim 135, wherein R_5 is dendrimer.

139 (new). A compound according to claim 135, wherein R_5 is a substrate.

140 (new). A compound, according to claim 135, wherein R_5 is a surface.

141 (new). A compound according to claim 135, wherein at least one of R_1 , R_2 , R_3 and R_4 is halogen.

142 (new). A method for preparing a compound of formula III, the method comprising dehydration a compound of formula II according to claim 135;



wherein R_1 and R_2 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

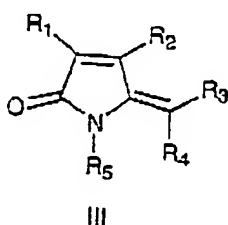
R_3 and R_4 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and R_5 is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or forms part of an amino acid, or is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

143 (new). A method according to claim 142, wherein at least one of R_1 , R_2 , R_3 and R_4 in formula III is halogen.

144 (new). A method according to claim 141, wherein the dehydration is carried out in the presence of a dehydrating agent.

145 (new). A method according to claim 144, wherein the dehydrating agent is selected from the group consisting of phosphorus pentoxide, silica gel, molecular sieves, alumina, acidic resins and polymers, phosphorus oxychloride, acetic anhydride, N,N'-dicyclohexylcarbodiimide (DCC), trifluoroacetic acid, sulfuric acid, trifluoroacetic anhydride, and trifluoromethanesulfonic acid anhydride (triflic anhydride).

146 (new). A compound of formula III:



wherein R_1 and R_2 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R_3 and R_4 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and

R_5 is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or

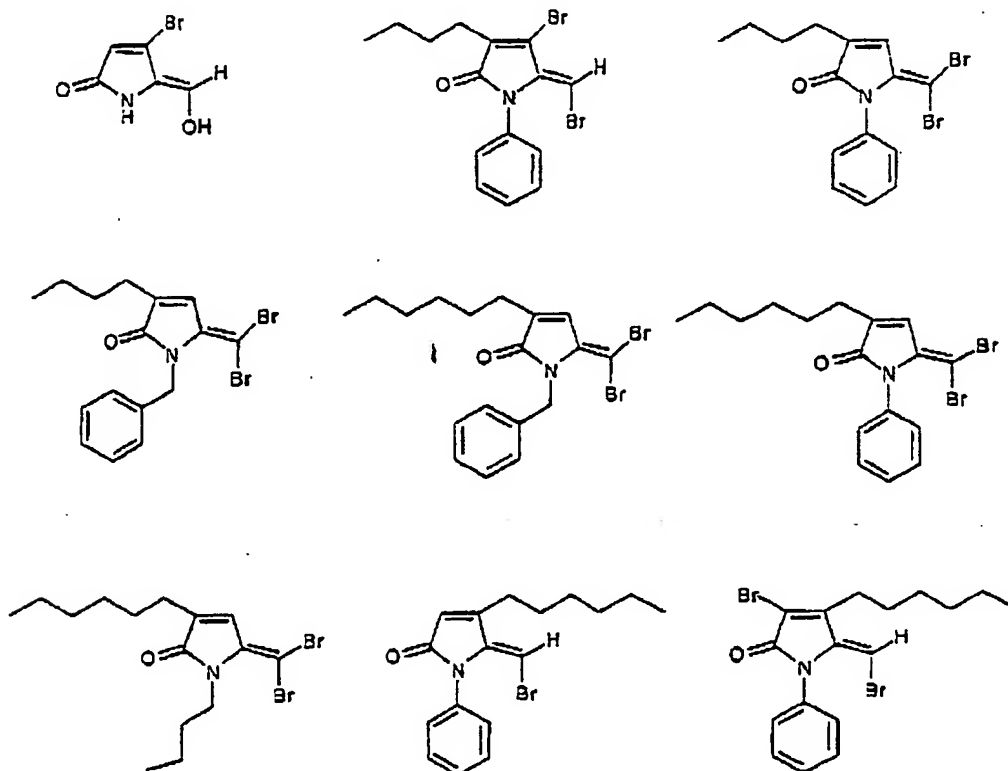
unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

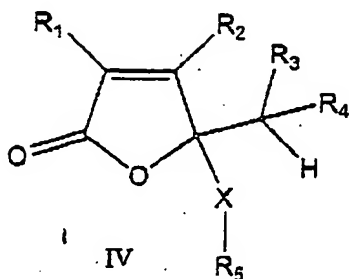
is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

147 (new). A compound according to claim 144, wherein at least one of R_1 R_2 , R_3 and R_4 is halogen.

148 (new). A compound according to claim 146, selected from the group consisting of:



149 (new). A method for the preparation of a compound of formula IV



wherein R_1 and R_2 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R_3 and R_4 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and

R_5 is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

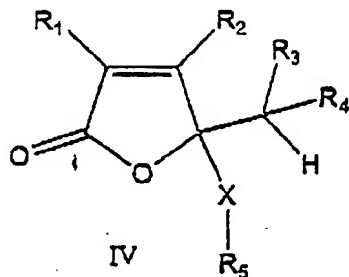
is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface,

X is O or NR₆, where R₆ be independently selected from R₁,
 the method comprising reacting a compound of formula I as defined in claim 1,
 wherein R₃ is a hydrogen and "-----" represents a double bond.

150 (new). A method according to claim 149, wherein at least one of R₁, R₂, R₃
 and R₄ is halogen.

151 (new). A method according to claim 149, wherein R₅ is H.

152 (new). A compound of formula IV



wherein R₁ and R₂ are independently selected from H, halogen, substituted or
 unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted
 oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or
 substituted or unsubstituted arylalkyl,

optionally interrupted by one or more hetero atoms, straight chain or branched
 chain, hydrophilic or fluorophilic;

R_3 and R_4 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl;

R_5 is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface;
and

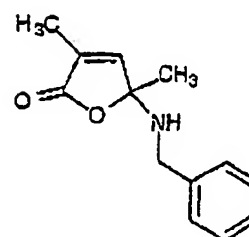
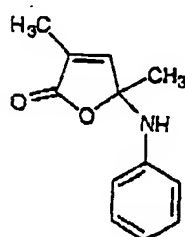
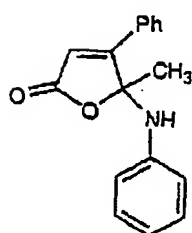
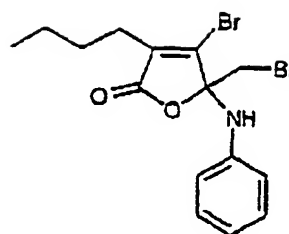
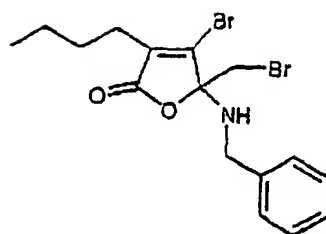
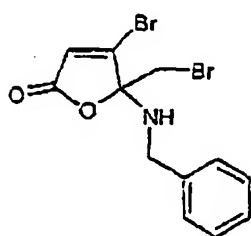
X is O or NR_6 , where R_6 be independently selected from R_1 .

153 (new). A compound according to claim 148, wherein at least one of R_1 , R_2 , R_3 and R_4 is halogen.

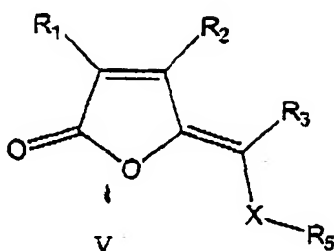
154 (new). A compound according to claim 152, wherein X is NR_6 .

155 (new). A compound according to claim 154, wherein R_6 is an optionally substituted arylalkyl.

156 (new). A compound according to claim 152 selected from the group consisting of:



157 (new). A compound of formula V:



wherein R_1 and R_2 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero

atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R_3 is selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl;

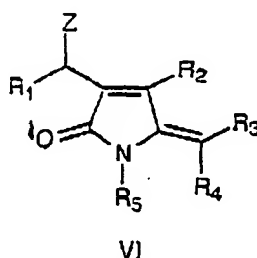
X is O or NR_6 , where R_6 is as defined above; and

R_5 is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

158 (new). A compound of formula (VI):



wherein R_1 and R_2 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or

substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R_3 and R_4 are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted aryl or arylalkyl;

R_5 is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface;
and

Z is selected from the group R_2 , halogen, $OC(O)R_2$, $=O$, amine azide, thiol, R_2 , mercaptoaryl, arylalkoxy, mercaptoarylalkyl, $SC(O)R_2$, $OS(O)_2R_2$, $NHC(O)R_2$, $=NR_2$ or NHR_2 .

159 (new). An oligomer or a polymer formed by oligomerising or polymerising a compound of formula II - VI directly or with one or more other monomers.

160 (new). An oligomer or a polymer according to claim 159, wherein the one or more other monomer is selected from the group acrylate ester such as substituted or unsubstituted alkyl, hydroxyalkyl, aminoalkyl, or substituted substituted or unsubstituted aryl acrylates or methacrylates, crotonates, substituted or unsubstituted acrylonitriles,

vinyl alcohols or acetates, styrene and siloxanes.

161 (new). A surface coating or polymer having incorporated therein a compound according to claim 118.

162 (new). Use of a compound according to claim 118 as antimicrobial and/or antifouling agent.

163 (new). Use of a compound according to claim 135 in a medical, scientific and/or biological application(s).

164 (new). A composition comprising at least one compound according to claim 135 and a carrier or diluent.

165 (new). A composition according to claim 164, where the carrier or diluent is a liquid.

166 (new). A composition according to claim 164, where the composition is in the form of a solution or suspension of at least one of the compounds.

167 (new). A composition according to claim 165, wherein the liquid is an aqueous solvent or a non-aqueous solvent.

168 (new). A composition of claim 164, wherein the solvent is a one or more organic solvent(s).

169 (new). A composition according to claim 165, wherein the liquid is an ionic liquid.

170 (new). A composition according to claim 164, in an aerosol or powder formulation.

171 (new). A composition according to 164, including organic or inorganic polymeric substances.

172 (new). A composition according to claim 171, wherein the compound is admixed with a polymer or bound to, or adsorbed on to, a polymer.

173 (new). A composition according to claim 164 formulated as a disinfectant or cleaning formulation.

174 (new). A composition according to claim 164 in the form of a powder, solutions, suspension, dispersion, emulsion or gel.

175 (new). A composition according to claim 164 in the form of a pharmaceutical composition comprising a pharmaceutically acceptable carrier, diluent

and/or excipient.

176 (new). A composition according to claim 175, wherein the composition is a form suitable for parenteral or non-parenteral administration.

177 (new). A composition according to claim 176 formulated for topical, intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intranasal, epidural, ophthalmic, or oral administration.

178 (new). A composition according to claim 175 formulated for administration by infusion or bolus injection, absorption through epithelial or mucocutaneous linings and may be administered together with other biologically active agents.

179 (new). A composition according to claim 175 formulated for use in an inhaler or nebulizer.

180 (new). A method of treating an infection in a human or animal subject the method comprising administration to the subject of an effective amount a compound in accordance with claim 135.

181 (new). A method according to claim 180 wherein treatment is therapeutic or prophylactic.

182 (new). A method of treating an infection or condition in a subject that is characterised by biofilm formation comprising administering a compound according to claim 135.

183 (new). A method according to claim 182, wherein the condition is cystic fibrosis.

184 (new). A method according to claim 182, wherein the condition is dental caries, periodontitis, otitis media, muscular skeletal infections, necrotising fascitis, biliary tract infection, osteomyelitis, bacterial prostatitis, native valve endocarditis, cystic fibrosis pneumonia, meloidosis.

185 (new). A method according to claim 182, wherein the condition is nosocomial infection.

186 (new). A method according to claim 185, wherein the infection is ICU pneumonia or an infection associated with sutures, exit sites, arteriovenous sites, scleral buckles, contact lenses, urinary catheter cystitis, peritoneal dialysis (CAPD) peritonitis, IUDs, endotracheal tubes, Hickman catheters, central venous catheters, mechanical heart valves, vascular grafts, biliary stent blockage, and orthopedic devices, penile prostheses.

187 (new). A method according to claim 182, wherein the infection is selected

from the group a skin infection, bum infection and wound infection.

188 (new). A method according to claim 182, wherein the is an immunocompromised individuals.

189 (new). A method for treating or preventing biofilm formation on a surface, the method comprising contacting the surface with a compound according to claim 135.

190 (new). A method according to claim 189, wherein the surface is a non-biological surface.

191 (new). A method according to claim 189, wherein the surface is a natural surface.

192 (new). A method according to claim 189, wherein the surface is a surface of a plant, seed, wood, fibre or hair.

193 (new). A method according to claim 189, wherein the surface is a biological surface.

194 (new). A method according to claim 193, wherein the surface is a surface of a tissue, membrane or skin.

195 (new). A method according to claim 189, wherein the surface is a hard surface.

196 (new). A method according to claim 195, wherein the surface is formed of a metal, an organic and inorganic polymer, a natural or synthetic elastomer, board, glass, wood, paper, concrete, rock, marble, gypsum and ceramic materials which optionally are coated.

197 (new). A method according to claim 189, wherein the surface is a coating.

198 (new). A method according to claim 197, wherein the coating is an enamel, varnish or paint.

199 (new). A method according to claim 189, wherein the surface is a soft surface.

200 (new). A method according to claim 199, wherein the surface is a surface of a fibre.

201 (new). A method according to claim 200, wherein the fibre is in the form of a yarn, a textile, a vegetable fibre, rock wool.

202 (new). A method according to claim 189, wherein the surface is a porous

surface.

203 (new). A method according to claim 189, wherein the surface is a surface of process equipment or components of cooling equipment.

204 (new). A method according to claim 203, wherein the process equipment is for a cooling tower, a water treatment plant, a dairy processing plant, food processing plant, a chemical process plant or a pharmaceutical process plant or a component thereof.

205 (new). A method according to claim 204, wherein the surface is that of a filter.

206 (new). A method according to claim 205, wherein the filter is a membrane filter.

207 (new). A method according to claim 189, wherein the surface is a surface of toilet bowls, bathtubs, drains, highchairs, counter tops, vegetables, meat processing rooms, butcher shops, food preparation areas, air ducts, air-conditioners, carpets, paper or woven product treatment, nappies(diapers), personal hygiene products, and washing machines.

208 (new). A method according to claim 189, wherein the surface is an

industrial surface.

209 (new). A method according to claim 189, wherein the surface is a medical surface.

210 (new). A method according to claim 189, wherein the surface is a hospital, veterinary hospital surface, mortuary surface and funeral parlour surface.

211 (new). A dentifrice, a mouthwash or a composition for the treatment of dental caries comprising a compound in accordance with claim 135.

212 (new). A composition for treatment of acne comprising a compound in accordance with claim 135.

213 (new). A composition for cleaning and disinfecting contact lenses comprising a compound in accordance with claim 135.

214 (new). A medical device incorporating a compound as defined below comprising a compound in accordance with claim 135 on at least one surface thereof.

215 (new). An implant device having at least one surface associated with compound as defined below comprising a compound in accordance with claim 135.

216 (new). An implant device according to claim 215, wherein the device is an artificial heart valve or hip joint, an indwelling catheter, pacemaker, surgical pin and the like.

217 (new). An antifouling composition comprising an effective amount of a compound as defined below comprising a compound in accordance with claim 135.

218 (new). An antifouling coating composition, the composition comprising an effective amount of a compound as defined below comprising a compound in accordance with claim 135.

219 (new). An shellfish or aquaculture apparatus having at least one surface associated with a compound as defined below comprising a compound in accordance with claim 135.

220 (new). A biofilm removing or inhibiting composition comprising an amount of a compound according to any one of comprising a compound in accordance with claim 135 and a vehicle or carrier, wherein the amount of the mixture is effective to remove or disrupt a bacterial biofilm or inhibit normal biofilm formation.

221 (new). A composition according to claim 220, additionally comprising a surfactant selected from group consisting of anionic, nonionic, amphoteric, biological surfactants and mixtures thereof.

222 (new). A composition of claim 221 further comprising a compound selected from the group consisting of biocides, fungicides, antibiotics, and mixtures thereof.

223 (new). A method of removing biofilm from a surface comprising the step of administering a cleaning-effective amount of a compound of claim comprising a compound in accordance with claim 135 to a biofilm-containing surface.

224 (new). A method of preventing biofilm formation on a surface comprising the step of administering an effective amount of the compound as defined below comprising a compound in accordance with claim 135 to a surface, wherein the amount is effective to prevent biofilm formation.

225 (new). A method of claim 224, wherein the surface is a hard, rigid surface.

226 (new). A method of claim 224, wherein the surface is selected from the group consisting of a drainpipe, glaze ceramic, porcelain, glass, metal, wood, chrome, plastic, vinyl, and formica.

227 (new). A method of claim 224, wherein the surface is a soft, flexible surface.

228 (new). A method of claim 224, wherein the surface is selected from the group consisting of shower curtains or liners, upholstery, laundry, and carpeting.

229 (new). A method of claim 224, wherein the biofilm is produced by a bacteria of the class *Pseudomonas*.

230 (new). The method of claim 224, wherein the bacteria is of the species *Pseudomonas aeruginosa*.

231 (new). A method of claim 224, wherein the biofilm is produced by an organism selected from the group consisting of bacteria, algae, fungi and protozoa.

232 (new). A dentifrice comprising an effective amount of a compound as defined below comprising a compound in accordance with claim 135, wherein the amount is effective to either prevent or remove biofilm formation.

233 (new). A mouthwash comprising an effective amount of a compound as defined below comprising a compound in accordance with claim 135, wherein the amount is effective to either prevent or remove biofilm formation.

234 (new). An optical lens, wherein at least a part of a surface of the lens is associated with a compound as defined below comprising a compound in accordance with claim 135.

KUMAR

Appl. No. Unassigned

February 22, 2005

235 (new). An optical lens according to claim 234, wherein the lens in a contact lens.